

Appendix B

STATEMENT OF WORK
FOR RD/RA CONSENT DECREE
EPA - Region IV

STATEMENT OF WORK FOR THE SANFORD GASIFICATION PLANT SITE

OPERABLE UNIT ONE,

OPERABLE UNIT TWO

AND

OPERABLE UNIT THREE

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STATEMENT OF WORK FOR THE
REMEDIAL DESIGN AND REMEDIAL ACTION
FOR OPERABLE UNITS ONE, TWO AND THREE
AT THE SANFORD GASIFICATION PLANT SITE

I. INTRODUCTION

This Statement of Work (SOW) outlines the work to be performed by Settling Defendants as a single Operable Unit of the Remedial Design at the Sanford Gasification Plant Site Seminole County, Florida ("the Site"). The work outlined is intended to fully implement the remedies as described in the Operable Unit One (OU1) Amended Record of Decision (AROD) dated September 21, 2006, Operable Unit Two (OU2) and Operable Unit Three (OU3) Record of Decisions (RODs) for the Site, dated June 12, 2001 and September 21, 2006, respectively and to achieve the Performance Standards set forth in all RODs. The requirements of this SOW will be further detailed in work plans and other documents to be submitted by the Settling Defendants for approval as set forth in this SOW. It is not the intent of this document to provide task specific engineering or geological guidance. The definitions set forth in Section IV of the Consent Decree shall also apply to this SOW unless expressly provided otherwise herein.

Settling Defendants are responsible for performing the work to implement the selected remedies. EPA shall conduct oversight of the Settling Defendants' activities throughout the performance of the work. The Settling Defendants shall assist EPA's efforts in conducting oversight.

EPA review or approval of a task or deliverable shall not be construed as a guarantee as to the adequacy of such task or deliverable. If EPA modifies a deliverable pursuant to Section XI of the Consent Decree, such deliverable as modified shall be deemed approved by EPA for purposes of this SOW. A summary of the major deliverables that Settling Defendants shall submit for the Work is attached.

II. OVERVIEW OF THE REMEDY

THE OBJECTIVES OF THE REMEDIAL ACTIONS ARE TO:

- Reduce the potential for direct exposure to Contaminants of Concern (COCs) in surface soils at concentrations above a cancer risk of 10^{-6} and a hazard index of 1.0.
- Reduce the potential for migration of COCs in OU1 to groundwater, surface water, and sediment at concentrations that would exceed RGOs and Applicable or Relevant and Appropriate Requirements (ARARs) for these media.
- To reduce COCs in groundwater to ARARs or health-based levels where ARARs are not available.

- Address sediments containing polycyclic aromatic hydrocarbons and lead at elevated concentrations (i.e., reduce potential exposure to ecological receptors) in a manner consistent with the risk management objectives in the remediation area defined above;
- Maintain consistency with City of Sanford, Water Management District, and State of Florida long-term requirements for surface water drainage capacity in the remediation area defined above; and
- Establish appropriate controls to address potential human exposure from reasonably anticipated future disturbances within the remediation area described above.

III. REMEDIES

The amended remedy addresses the main threat associated with OU1 (soils) of the Site. After reviewing the information available and after careful consideration of the various alternatives, EPA is selected a combination of In-Situ Solidification/Stabilization (ISS), off-site disposal and optional use of Chemical Oxidation in non-Nonaqueous Phase Liquid (non-NAPL) areas with implementation of Institutional Controls. Soil excavated to account for bulking that does not exceed residential levels may be used without restrictions as clean fill for the final soil cap or as fill material in other areas.

Following implementation of the removal of surface soils and subsurface ISS areas, addressed in OU1, further groundwater sampling is expected to demonstrate a significant decrease of groundwater contamination (OU2). Monitoring wells (new and/or existing), will be used to monitor the groundwater for Monitored Natural Attenuation (MNA) remediation.

The OU3 sediments selected remedy entails the removal of surficial sediments (a minimum of 2 ft) in Cloud Branch Creek; installation of a culvert and backfill; long-term monitoring to confirm the integrity of the remedy; and implementation of institutional controls to further ensure the integrity of the cover and mitigate the potential for human or environmental exposures to site-related constituents.

A. Components

The major components of the remedies are described in OU1 AROD, OU2 and OU3 RODs Section 11 for the soil and sediments selected remedies and Section 12 for the groundwater selected remedy.

The OU1 remedy will use a combination of remedial technologies to address shallow and deep subsurface soil impacts. The deepest soil impacts will be treated using ISS. Comparatively shallower soil will be excavated to accommodate the ISS process and will be sent for off-site landfill disposal. The combination of ISS and off-site landfill disposal will address soil impacts exceeding the groundwater protection levels and achieve residential levels for surface soil.

Soil excavated to account for bulking and surface soil that exceeds residential levels will be transported off Site to a RCRA Subtitle D landfill for disposal. Soil excavated to account for bulking that does not exceed residential levels can be used without restrictions as clean fill for the final soil cap or as fill material in other areas.

A relatively thin layer of NAPL-impacted soil is present above the clay layer beneath the non-impacted overburden. The non-impacted overburden may have to be solidified as well, for the following reasons; (1) advancement of the mixing augers may require reagent for lubrication to advance the augers, and (2) after successful treatment of the deep impacts, withdrawal of the augers through the untreated and non-impacted overburden soil may have the potential to result in the spread of impacts to non-impacted soil.

Bench and pilot scale testing will be conducted as a part of the OU1 remedial design process.

The anticipated depth of in-Situ treatment will range from 2 to approximately 30 ft bls. The deepest treatment areas will be advanced to the top of the clay layer that underlies the Site area.

In addition to the ISS technology, EPA will retain the use of Chemical Oxidation as a potential means to address those perimeter areas that fall under certain non-NAPL characteristics. Bench and pilot scale testing will be necessary to determine the appropriate oxidant for benzene and other COCs.

The OU1 remedy will require the implementation of an Operation and Maintenance Plan after its construction. A review will be conducted every five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Following implementation of the OU1 remedy, further groundwater sampling is expected to demonstrate a significant decrease of groundwater contamination. Monitoring wells (new and/or existing), will be used to monitor the groundwater for MNA remediation effort following implementation of the OU1 remedy. Institutional Controls including groundwater use advisories will be implemented to reduce the potential risk associated with the exposure to the groundwater impacts on properties above impacted groundwater.

The OU3 sediments removal will be conducted during the relatively dry winter season when water levels and creek flow rates are typically lowest. Remediation activities will not be conducted during high flow conditions. Sequential sections of the creek will be isolated for removal activities with the use of berms upstream and downstream of the removal area, with pumps used to route water past the work area

as needed. Sediments will be removed to a nominal depth of 2 ft below existing grade. Excavation will be conducted in the bed of the channel and extend up the bank, as necessary to achieve the removal of a minimum of 2 feet of creek bed sediments, as well as providing an excavation of sufficient width and depth to install the culvert (including bedding material) with a minimum backfill cover over the culvert of at least 6-inches. The actual backfill or bedding materials to be used and their thicknesses will be determined during the remedial design. The removed sediments and bank soils will be transported to a central handling area and stockpiled pending transport for off-site disposal at a RCRA Subtitle D landfill, or direct loaded for off-site disposal.

B. Treatment

The ISS treatment will include injection of a treatment reagent (i.e., Portland Cement) into the subsurface soil while the soil is mixed in-Situ using large construction equipment (typically 3 to 10-foot diameter auger). The auger will be advanced through the soil and the reagent will be injected into the entire column of subsurface soil that exceeds groundwater protection levels. The simultaneous reagent injection and auger-driven in-Situ mixing will homogenize the soil creating a stable, low-permeability, monolithic mass that cures to achieve an average unconfined compressive strength ranging from 50 to 200 pounds per square inch. Most importantly, the void space between soil particles will be occupied by the reagent, resulting in a permeability reduction of several orders of magnitude and will obstruct the passage of groundwater flow through the soil mass.

Natural attenuation has been identified as occurring at the Site, resulting in *in-situ* treatment of contaminants. Natural processes will decrease contaminant concentrations over time, and these concentrations can be monitored and evaluated periodically to ensure that the remedy remains protective. Groundwater monitoring will ensure the remedy is protective and natural processes are reducing contamination levels as expected.

C. Performance Standards

Settling Defendants shall meet all Performance Standards, as defined in the Consent Decree including the standards set forth in the attached RODs.

D. Compliance Testing

Compliance testing and any related requirements should be addressed and shall conform to Selected Remedy Section of OU1 AROD and OU2 and OU3 RODs.

Settling Defendants shall perform compliance testing to ensure that all Performance Standards are met. The excavated and treated soils and groundwater monitoring should be done in accordance with the Performance Standard Verification Plan or

Cut Line Approach developed pursuant to Task IV of this SOW. After demonstration of compliance with Performance Standards, Settling Defendants shall monitor the groundwater for natural attenuation parameters.

IV. PLANNING AND DELIVERABLES

The specific scope of this work shall be documented by Settling Defendants in a Remedial Design (RD) Work Plan and a Remedial Action (RA) Work Plan. Plans, specifications, submittals, and other deliverables shall be subject to EPA review and approval in accordance with Section XI of the Consent Decree.

Settling Defendants shall submit a technical memorandum documenting any need for additional data along with the proposed Data Quality Objectives (DQOs) whenever such requirements are identified. Settling Defendants are responsible for fulfilling additional data and analysis needs identified by EPA during the RD/RA process consistent with the general scope and objectives of the Consent Decree, including this SOW.

Settling Defendants shall perform the following tasks:

TASK I - PROJECT PLANNING

A. Site Background

Settling Defendants shall gather and evaluate the existing information regarding the Site and shall conduct a visit to the Site to assist in planning the RD/RA as follows:

1. Collect and Evaluate Existing Data and Document the Need for Additional Data

Before planning RD/RA activities, all existing Site data shall be thoroughly compiled and reviewed by Settling Defendants. Specifically, this shall include the RI and FS data for OU1, OU2 and OU3 and other available data related to the Site. This information shall be utilized in determining additional data needed for RD/RA implementation.

2. Conduct Site Visit

Settling Defendants shall conduct a visit to the Site with the EPA Remedial Project Manager (RPM) during the project planning phase to assist in developing a conceptual understanding of the RD/RA requirements for the Site. Information gathered during this visit shall be utilized to plan the project and to determine the extent of the additional data necessary to implement the RD/RA.

B. Project Planning

Once Settling Defendants have collected and evaluated existing data and conducted a visit to the Site, the specific project scope shall be planned. Settling Defendants shall meet with EPA at the completion of this evaluation regarding the following activities and before proceeding with Task II.

TASK II - REMEDIAL DESIGN

The RD shall provide the technical details for implementation of the RA in accordance with currently accepted environmental protection technologies and standard professional engineering and construction practices. The design shall include clear and comprehensive design plans and specifications.

A. Remedial Design Planning

Settling Defendants shall submit an RD Work Plan, and if needed, a Health and Safety Plan (HASP), a Treatability Study Work Plan and a Design Sampling and Analysis Plan (DSAP), to EPA. The RD Work Plan must be reviewed and approved by EPA and the HASP reviewed by EPA. The Settling Defendants contemplate submitting the DSAP and HASP to the EPA prior to submittal of the RD Work Plan, reviewing the DSAP and HASP with the EPA, and proceeding with implementation of the DSAP prior to approval of the RD Work Plan. The DSAP will be submitted with the RD Work Plan for approval. Upon approval of the RD Work Plan, Settling Defendants shall implement the RD Work Plan in accordance with the design management schedule contained therein. Plans, specifications, submittals, and other deliverables shall be subject to EPA review and approval in accordance with Section XI of the Consent Decree. Review and/or approval of design submittals (including DSAP) only allows Settling Defendants to proceed to the next step of the design process. It does not imply acceptance of later design submittals that have not been reviewed, nor that the remedy, when constructed, will meet Performance Standards.

1. RD Work Plan

Settling Defendants shall submit the RD Work Plan to EPA for review and approval. The Work Plan shall be developed in conjunction with the DSAP, the HASP, and the Treatability Study Work Plan. Each of the above-mentioned plans may be delivered under separate cover. Settling Defendants may elect to provide EPA with a draft version of the DSAP, HASP and Quality Assurance Project Plan (QAPP) prior to the submittal of the Work Plan, for EPA's review and comments. The Work Plan shall include a comprehensive description of the additional data collection and evaluation activities to be performed, if any, and the plans and specifications to be prepared. A comprehensive design management

schedule for completion of each major activity and submission of each deliverable shall also be included.

Specifically, the Work Plan shall present the following:

- a. A statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RD/RA.
- b. A background summary setting forth the following:
 - 1) A brief description of the Site including the geographic location and the physiographic, hydrologic, geologic, demographic, ecological, and natural resource features;
 - 2) A brief synopsis of the history of the Site including a summary of past disposal practices and a description of previous responses that have been conducted by local, State, Federal, or private parties;
 - 3) A summary of the existing data including physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the Site.
- c. A list and detailed description of the tasks to be performed, information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that shall be submitted to EPA. This description shall include the deliverables set forth in the remainder of Task II.
- d. A schedule with specific dates for completion of each required activity and submission of each deliverable required by the Consent Decree and this SOW. This schedule shall also include information regarding timing, initiation and completion of all critical path milestones for each activity and/or deliverable.
- e. A project management plan, including a data management plan, and provision for monthly reports to EPA, and meetings and presentations to EPA at the conclusion of each major phase of the RD/RA. The data management plan shall address the requirements for project management systems, including tracking, sorting, and retrieving the data along with an identification of the software to be used, minimum data requirements, data format and backup data management. The plan shall address both data management and document control for all activities conducted during the RD/RA.

- f. A description of the community relations support activities to be conducted during the RD. At EPA's request, Settling Defendants will assist EPA in preparing and disseminating information to the public regarding the RD work to be performed.

2. Design Sampling and Analysis Plan

Settling Defendants shall submit the DSAP to the EPA for review prior to implementation and for approval with the RD Work Plan to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data generated will meet the DQOs established. The DSAP shall include a QAPP.

The FSAP shall define in detail the sampling and data-gathering methods that shall be used on the project. It shall include sampling objectives, sample location (horizontal and vertical) and frequency, sampling equipment and procedures, and sample handling and analysis. The DSAP shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. The QAPP shall describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for obtaining data of sufficient quality to meet National Contingency Plan (NCP) requirements as identified at 300.435 (b). In addition, the QAPP shall address personnel qualifications, sampling procedures, sample custody, analytical procedures, and data reduction, validation, and reporting. These procedures must be consistent with the Region IV Environmental Investigation Standard Operating Procedures and Quality Assurance Manual and the guidances specified in Section VIII of the Consent Decree.

Settling Defendants shall demonstrate in advance and to EPA's satisfaction that each laboratory it may use is qualified to conduct the proposed work and meets the requirements specified in Section VIII Quality Assurance, Sampling, and Data Analysis of the Consent Decree. EPA may require that Settling Defendants submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specification, and laboratory analyses of performance samples (blank and/or spike samples). In addition, EPA may require submittal of data packages equivalent to those generated by the EPA Contract Laboratory Program (CLP).

3. Health and Safety Plan

Settling Defendants shall submit a HASP to the EPA for review. The

HASP shall be prepared in conformance with Settling Defendants' health and safety program, and in compliance with OSHA regulations and protocols. The HASP shall include a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and provisions for site control. EPA will not approve Settling Defendants' HASP, but rather EPA will review it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

B. Preliminary Design

The technical requirements of the RA shall be addressed and outlined so that they may be reviewed to determine if the final design will provide an effective remedy. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the project. In accordance with the design management schedule established in the approved RD Work Plan, Settling Defendants shall submit to EPA the Preliminary Design submittal which shall consist of the following elements, and Project Delivery Strategy for the remedial design process.

1. Results of Data Acquisition Activities

Data gathered during the project planning phase shall be compiled, summarized, and submitted along with an analysis of the impact of the results on design activities. In addition, surveys conducted to establish topography, rights-of-way, easements, and utility lines shall be documented. Utility requirements and acquisition of access, through purchases or easements, that are necessary to implement the RA shall also be discussed.

2. Design Criteria Report

The concepts supporting the technical aspects of the design shall be defined in detail and presented in this report. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including:

- a. Waste characterization
- b. Pretreatment requirements
- c. Volume of each media requiring treatment
- d. Treatment schemes (including all media and by-products)
- e. Input/output rates
- f. Influent and effluent qualities
- g. Materials and equipment
- h. Performance Standards
- i. Long-term monitoring requirements

3. Draft Plans and Specifications

Settling Defendants shall submit an outline of the required drawings, including preliminary sketches and layouts, describing conceptual aspects of the design, unit processes, etc. In addition, an outline of the required specifications, including Performance Standards, shall be submitted. Construction drawings shall reflect organization and clarity, and the scope of the technical specifications shall be outlined in a manner reflecting the final specifications.

4. Plan for Satisfying Permitting Requirements

All activities must be performed in accordance with the requirements of all applicable federal and state laws and regulations. Any off-site disposal shall be in compliance with the policies stated in the Procedure for Planning and Implementing Off-site Response Actions (Federal Register, Volume 50, Number 214, November, 1985, pages 45933 - 45937) and Federal Register, Volume 55, Number 46, March 8, 1990, page 8840, and the NCP, Section 300.440. The plan shall identify the off-site disposal/discharge permits that are required, the time required to process the permit applications, and a schedule for submittal of the permit applications.

5. Preliminary Design Analyses

The evaluations conducted to select the design approach shall be described. Design calculations shall be included.

6. Draft Construction Schedule

Settling Defendants shall develop a Draft Construction Schedule for construction and implementation of the remedial action which identifies timing for initiation and completion of all critical path tasks. Settling Defendants shall specifically identify dates for completion of the project and major milestones.

C. Prefinal/Final Design

After EPA review and comment on the Preliminary Design, the Final Design shall be submitted along with a memorandum indicating how the Draft Design comments were incorporated into the Final Design. All Final Design documents shall be certified by a Professional Engineer registered in the State of Florida. EPA written approval of the Final Design is required before initiating the RA, unless specifically authorized by EPA. The following items shall be submitted with or as part of the Final Design:

1. Complete Design Analyses

The selected design shall be presented along with an analysis supporting the design approach. Design calculations shall be included.

2. Final Plans and Specifications

A complete set of construction drawings and specifications shall be submitted which describe the selected design.

3. Final Construction Schedule

Settling Defendants shall submit a final construction schedule to EPA for approval.

4. Construction Cost Estimate

An estimate within +15 percent to -10 percent of actual construction costs shall be submitted.

5. Construction Quality Assurance Plan

Settling Defendants shall develop and implement a Construction Quality Assurance Program to ensure, with a reasonable degree of certainty, that the completed RA meets or exceeds all design criteria, plans and specifications, and Performance Standards. The Construction Quality Assurance Plan (CQAP) shall incorporate relevant provisions of the Performance Standards Verification Plan (see Task IV). At a minimum, the CQAP shall include the following elements:

- a. A description of the quality control organization, including a chart showing lines of authority, identification of the members of the Independent Quality Assurance Team (IQAT), and acknowledgment that the IQAT will implement the control system for all aspects of the work specified and shall report to the project coordinator and EPA. The IQAT members shall be representatives from testing and inspection organizations and/or the Supervising Contractor and shall be responsible for the QA/QC of the RA. The members of the IQAT shall have a good professional and ethical reputation, previous experience in the type of QA/QC activities to be implemented, and demonstrated capability to perform the required activities. They shall also be independent of the construction contractor.
- b. The name, qualifications, duties, authorities, and responsibilities of

each person assigned a QC function.

- c. Description of the observations and control testing that will be used to monitor the construction and/or installation of the components of the RA. This includes information which certifies that personnel and laboratories performing the tests are qualified and the equipment and procedures to be used comply with applicable standards. Any laboratories to be used shall be specified. Acceptance/Rejection criteria and plans for implementing corrective measures shall be addressed.
- d. A schedule for managing submittals, testing, inspections, and any other QA function (including those of contractors, subcontractors, fabricators, suppliers, purchasing agents, etc.) that involve assuring quality workmanship, verifying compliance with the plans and specifications, or any other QC objectives. Inspections shall verify compliance with all environmental requirements and include, but not be limited to, air quality and emissions monitoring records and waste disposal records, etc.
- e. Reporting procedures and reporting format for QA/QC activities including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.
- f. A list of definable features of the work to be performed. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements.

TASK III - REMEDIAL ACTION

RA shall be performed by Settling Defendants to implement the response actions selected in the OU1 AROD and OU2 and OU3 RODs.

A. RA Planning

Concurrent with the submittal of the Final Design, Settling Defendants shall submit a draft RA Work Plan, a Construction Management Plan, a CQAP, and a Construction HASP/Contingency Plan. The RA Work Plan, Construction Management Plan, and CQAP must be reviewed and approved by EPA and the Construction HASP/Contingency Plan reviewed by EPA prior to the initiation of the RA.

Upon approval of the Final Design and the RA Work Plan, Settling Defendants

shall implement the RA Work Plan in accordance with the construction management schedule. Significant field changes to the RA as set forth in the RA Work Plan and Final Design shall not be undertaken without the approval of EPA. The RA shall be documented in enough detail to produce as-built construction drawings after the RA is complete. Deliverables shall be submitted to EPA for review and approval in accordance with Section XI of the Consent Decree. Review and/or approval of submittals does not imply acceptance of later submittals that have not been reviewed, nor that the remedy, when constructed, will meet Performance Standards.

1. RA Work Plan

A Work Plan which provides a detailed plan of action for completing the RA activities shall be submitted to EPA for review and approval. The objective of this work plan is to provide for the safe and efficient completion of the RA. The Work Plan shall be developed in conjunction with the Construction Management Plan, the CQAP, the Groundwater Monitoring Plan and the Construction HASP/Contingency Plan, although each plan may be delivered under separate cover. The Work Plan shall include a comprehensive description of the work to be performed and the Final Construction schedule for completion of each major activity and submission of each deliverable.

Specifically, the Work Plan shall present the following:

- a. A detailed description of the tasks to be performed and a description of the work products to be submitted to EPA. This includes the deliverables set forth in the remainder of Task III.
- b. A schedule for completion of each required activity and submission of each deliverable required by this Consent Decree, including those in this SOW.
- c. A project management plan, will include a description of the roles and responsibilities of each member of the RA Team, and will provide for monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RA. EPA's Project Coordinator and the Settling Defendants' Project Coordinator will meet, at a minimum, on a quarterly basis, unless EPA determines that such meeting is unnecessary.
- d. A description of the community relations support activities to be conducted during the RA. At EPA's request, Settling Defendants shall assist EPA in preparing and disseminating information to the

public regarding the RA work to be performed.

- e. A strategy for delivering the project. Settling Defendants shall submit a document to EPA for review and approval describing the strategy for delivering the project. This document shall address the management approach for implementing the Remedial Action, including procurement methods and contracting strategy, phasing alternatives, and contractor and equipment availability concerns. If the construction of the remedy is to be accomplished by Settling Defendants' "in-house" resources, the document shall identify those resources.

2. Construction Management Plan

A Construction Management Plan shall be developed to indicate how the construction activities are to be implemented and coordinated with EPA during the RA. Settling Defendants shall designate a person to be a RA Coordinator and its representative on-site during the RA, and identify this person in the Plan. This Plan shall also identify other key project management personnel and lines of authority, and provide descriptions of the duties of the key personnel along with an organizational chart. In addition, a plan for the administration of construction changes and EPA review and approval of those changes shall be included.

3. Construction Quality Control Plan

Settling Defendants and the Remediation Contractor shall develop and implement a Construction Quality Control Plan (CQCP) to ensure, with a reasonable degree of certainty, that the completed RA meets or exceeds all design criteria, specifications, performance standards, ARARs, and permit requirements. At a minimum, the CQCP shall include a description of duties of the key personnel and a discussion of operational practices, monitoring procedures, and documentation that will occur for the purposes of quality control.

4. Groundwater Monitoring Plan

Settling Defendants shall prepare a Groundwater Monitoring Plan (GWMP) that satisfies the requirements of the Consent Decree and the OU1 AROD and OU2 and OU3 RODs selected remedies. The GWMP shall describe the frequency of sampling, the analytes to be included, and the sampling and analytical methods to be implemented, the quality assurance procedures to be used, and the manner in which data will be presented. The GWMP shall include the following elements.

- a. A Groundwater Field Sampling and Analysis Plan that provides guidance for all fieldwork by defining in detail the sampling and data gathering methods to be used. It shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required.
- b. A Groundwater Quality Assurance/Quality Control Plan that describes the quality assurance and quality control protocols which will be followed in demonstrating compliance with performance standards.
- c. Specification of those tasks to be performed by Settling Defendants to demonstrate compliance with the Performance Standards and a schedule for the performance of these tasks.

The GWMP will also provide for re-evaluation of the groundwater MNA model and adjustments in sampling schedule.

5. Construction Health and Safety Plan

Settling Defendants shall prepare a Construction HASP in conformance with Settling Defendants' health and safety program, and in compliance with OSHA regulations and protocols. The Construction HASP shall include a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. EPA will not approve Settling Defendants' Construction HASP, but rather EPA will review it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

6. Contingency Plan

Settling Defendants shall prepare a Contingency Plan and incorporate Air Monitoring and Spill Control and Countermeasures Plans if determined by EPA to be applicable for the Site. The Contingency Plan is to be written for the on-site construction workers and the local affected population. It shall include the following items:

- a. Name of person who will be responsible in the event of an emergency incident.
- b. Plan for initial site safety indoctrination and training for all employees, name of the person who will give the training and the topics to be covered.

- c. Plan and date for meeting with the local community, including local, state and federal agencies involved in the cleanup, as well as the local emergency squads and the local hospitals.
- d. A list of the first aid and medical facilities including, location of first aid kits, names of personnel trained in first aid, a clearly marked map with the route to the nearest medical facility, all necessary emergency phone numbers conspicuously posted at the job site (i.e., fire, rescue, local hazardous material teams, National Emergency Response Team, etc.).
- e. Plans for protection of public and visitors to the job site.
- f. Air Monitoring Plan which incorporates the following requirements:
 - 1) Air monitoring shall be conducted both on Site and at the perimeter of the Site. The chemical constituents that were identified during the Risk Assessment shall serve as a basis of the sampling for and measurement of pollutants in the atmosphere. Settling Defendants shall clearly identify these compounds and the detection and notification levels required in Paragraph 4 below. Air monitoring shall include personnel monitoring, on-site area monitoring, and perimeter monitoring.
 - 2) Personnel Monitoring shall be conducted according to OSHA and NIOSH regulations and guidance.
 - 3) On-site Area Monitoring shall consist of continuous real-time monitoring performed immediately adjacent to any waste excavation areas, treatment areas, and any other applicable areas when work is occurring. Measurements shall be taken in the breathing zones of personnel and immediately upwind and downwind of the work areas. Equipment shall include the following, at a minimum: organic vapor meter, explosion meter, particulate monitoring equipment, and onsite windsock.
 - 4) Perimeter Monitoring shall consist of monitoring airborne contaminants at the perimeter of the Site to determine whether harmful concentrations of toxic constituents are migrating off-site. EPA approved methods shall be used for sampling and analysis of air at the Site perimeter. The results of the perimeter air monitoring and the on-site meteorological station shall be used to assess the potential for off-site exposure to toxic materials. The air monitoring program shall include provisions for notifying nearby residents,

local, state and federal agencies in the event that unacceptable concentrations of airborne toxic constituents are migrating off-site. Settling Defendants shall report detection of unacceptable levels of airborne contaminants to EPA in accordance with Section X of the Consent Decree.

- g. A Spill Control and Countermeasures Plan which shall include the following:
 - 1) Contingency measures for potential spills and discharges from materials handling and/or transportation.
 - 2) A description of the methods, means, and facilities required to prevent contamination of soil, water, atmosphere, and uncontaminated structures, equipment, or material by spills or discharges.
 - 3) A description of the equipment and personnel necessary to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. This collected spill material must be properly disposed of.
 - 4) A description of the equipment and personnel to perform decontamination measures that may be required for previously uncontaminated structures, equipment, or material.

B. Preconstruction Conference

A Preconstruction Conference shall be held after selection of the construction contractor but before initiation of construction. This conference shall include Settling Defendants and federal, state and local government agencies and shall:

- 1. Define the roles, relationships, and responsibilities of all parties;
- 2. Review methods for documenting and reporting inspection data;
- 3. Review methods for distributing and storing documents and reports;
- 4. Review work area security and safety protocols;
- 5. Review the Construction Schedule;
- 6. Conduct a site reconnaissance to verify that the design criteria and the plans

specifications are understood and to review material and equipment storage locations.

The Preconstruction Conference must be documented, including names of people in attendance, issues discussed, clarifications made, special instructions issued, etc.

C. Prefinal Construction Inspection

Upon completion of all construction activities, Settling Defendants shall notify EPA for the purpose of conducting a Prefinal Construction Inspection. Participants should include the Project Coordinators, Supervising Contractor, Construction Contractor, Natural Resource Trustees and other federal, state, and local agencies with a jurisdictional interest. The Prefinal Inspection shall consist of a walk-through inspection of the entire project site. The objective of the inspection is to determine whether the construction is complete and consistent with the Consent Decree. Any outstanding construction items discovered during the inspection shall be identified and noted on a punch list. Additionally, treatment equipment shall be operationally tested by Settling Defendants. Settling Defendants shall certify that the equipment has performed to effectively meet the purpose and intent of the specifications. Retesting shall be completed where deficiencies are revealed. A Prefinal Construction Inspection Report shall be submitted by Settling Defendants which outlines the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for the Final Inspection.

D. Final Construction Inspection

Upon completion of all outstanding construction items, Settling Defendants shall notify EPA for the purpose of conducting a Final Construction Inspection. The Final Construction Inspection shall consist of a walk-through inspection of the entire project site. The Prefinal Construction Inspection Report shall be used as a check list with the Final Construction Inspection focusing on the outstanding construction items identified in the Prefinal Construction Inspection. All tests that were originally unsatisfactory shall be conducted again. Confirmation shall be made during the Final Construction Inspection that all outstanding items have been resolved. Any outstanding construction items discovered during the inspection still requiring correction shall be identified and noted on a punch list. If any items are still unresolved, the inspection shall be considered to be a Prefinal Construction Inspection requiring another Prefinal Construction Inspection Report and subsequent Final Construction Inspection.

E. Final Construction Report

Ninety (120) calendar days following the conclusion of the Final Construction Inspection, Settling Defendants shall submit a Draft Construction Report. EPA will

review the draft report and will provide comments to Settling Defendants. A Final Construction Report shall be submitted within 45 days from receipt of EPA comments. The Construction Report shall include the following:

1. A brief description of how outstanding items noted in the Prefinal Inspection were resolved;
2. An explanation of modifications made during the RA to the original RD and RA Work Plans and why these changes were made;
3. As-built drawings.
4. A synopsis of the construction work defined in the SOW and certification that the construction work has been completed.

F. Remedial Action Report

As provided in Section XV of the Consent Decree, within 90 days after Settling Defendants conclude that the Site remedy and restoration have been fully performed and the Performance Standards for the Site have been attained, Settling Defendants shall so certify to the United States and shall schedule and conduct a pre-certification inspection to be attended by EPA and Settling Defendants. If after the pre-certification inspection Settling Defendants still believe that the Remedial Action has been fully performed and the Performance Standards have been attained, Settling Defendants shall submit a RA Report for the Site to EPA in accordance with Section XV of the Consent Decree. The RA Report shall include the following:

1. A copy of the Final Construction Report and/or most recent Groundwater Monitoring Report, as applicable;
2. Synopsis of the work defined in this SOW and a demonstration in accordance with the Performance Standards Verification Plan that Performance Standards have been achieved;
3. Certification that the RA has been completed in full satisfaction of the requirements of the Consent Decree, and;
4. A description of how Settling Defendants have implemented of the EPA approved Operation and Maintenance Plan.

After EPA review, Settling Defendants shall address any comments and submit a revised report. As provided in Section XV of the Consent Decree, the RA shall not be considered complete until EPA approves the RA Reports for the respective OUs, consistent with Section XV of the Consent Decree, for soils, groundwater and sediments.

TASK IV- OPERATION AND MAINTENANCE

The Operation Maintenance (O&M) shall be performed in accordance with the approved O&M Plan.

A. O&M Plan

At the 30 percent construction stage, Settling Defendants shall submit an O&M Plan for review. The O&M Plan should include separate sections for OU1 and OU3. The O&M Plan must be reviewed and approved by EPA prior to initiation of O&M activities. If necessary, the O&M Plan shall be modified to incorporate any design modifications implemented during the RA.

Upon approval of the O&M Plan, Settling Defendants shall implement the O&M Plan in accordance with the schedule contained therein. This plan shall describe procedures, operation and evaluation activities that shall be carried out by Settling Defendants for OU1 and OU3. The plan shall address the following elements (if applicable) :

1. Description of normal operation and maintenance;
 - a. Description of tasks required for system operation;
 - b. Description of tasks required for system maintenance;
 - c. Schedule showing the required frequency for each O&M task.
2. Description of potential operating problems;
 - a. Description and analysis of potential operating problems;
 - b. Sources of information regarding problems; and
 - c. Common remedies or anticipated corrective actions.
3. Description of routine monitoring and laboratory testing;
 - a. Description of monitoring tasks;
 - b. Description of required laboratory tests and their interpretation;
 - c. Required QA/QC; and
 - d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
4. Description of alternate O&M;

- a. Should system fail, alternate procedures to prevent undue hazard; and
 - b. Analysis of vulnerability and additional resource requirements should a failure occur.
- 5. Safety Plan;
 - a. Description of precautions to be taken and required health and safety equipment, etc., for site personnel protection, and
 - b. Safety tasks required in the event of systems failure.
- 6. Description of equipment;
 - a. Equipment identification;
 - b. Installation of monitoring components;
 - c. Maintenance of site equipment; and
 - d. Replacement schedule for equipment and installation components.
- 7. Records and reporting;
 - a. Daily operating logs;
 - b. Laboratory records;
 - c. Records of operating cost;
 - d. Mechanism for reporting emergencies;
 - e. Personnel and Maintenance Records; and
 - f. Monthly reports to State/Federal Agencies.

TASK V - PERFORMANCE MONITORING

Performance monitoring shall be conducted to ensure that all Performance Standards are met for soil and groundwater.

A. Performance Standards Verification Plan for Soils and/or Sediments

A pre-determined “cut-line” has been established on the OU1 AROD and OU3 ROD. Since a “cut-line” approach has been already approved by EPA and FDEP a Standard Verification Plan is not required for soils and sediments.

If a “cut-line” approach for remedial design is not implemented, Settling Defendants shall submit a Performance Standard Verification Plan with the RA Work Plan. Guidances used in developing the DSAP during the Remedial Design phase shall be used. Once approved, the Performance Standard Verification Plan shall be implemented per the schedule specified in the Final Design. The Performance Standards Verification Plan shall include:

1. The Performance Standards Verification Field Sampling and Analysis Plan that provides guidance for all fieldwork by defining in detail the sampling and data gathering methods to be used. The Performance Standards Verification Field Sampling and Analysis Plan shall be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required.
2. The Performance Standards Verification Quality Assurance/Quality Control Plan that describes the quality assurance and quality control protocols which will be followed in demonstrating compliance with Performance standards.
3. Specification of those tasks to be performed by Settling Defendants to demonstrate compliance with the Performance Standards and a schedule for the performance of these tasks.

B. Groundwater Monitoring Plan

The purpose of the GWMP is to provide a mechanism to ensure that both short-term and long-term Performance Standards for the RA are met in groundwater. Settling Defendants shall submit GWMP with the Final Design. Once approved, Settling Defendants shall implement the GWMP on the approved schedule. The contents of the GWMP are described in Task III, Section A-4 (page 14).

REFERENCES

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD/RA process. Settling Defendants shall review these guidances and shall use the information provided therein in performing the RD/RA and preparing all deliverables under this SOW.

1. "National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule", Federal Register 40 CFR Part 300, March 8, 1990.
2. "Superfund Remedial Design and Remedial Action Guidance," U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.O-4A.
3. "Interim Final Guidance on Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties," U.S. EPA, Office of Emergency and Remedial Response, February 14, 1990, OSWER Directive No. 9355.5-01.
4. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 355.3-01.
5. "A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.
6. "EPA NEIC Policies and Procedures Manual," EPA-330/9-78-001-R, May 1978, revised November 1984.
7. "Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.
8. "Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.
9. "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.
10. "Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, August 1982.

11. "Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual," U.S. EPA Region IV, Environmental Services Division, February 1, 1991, (revised periodically).
12. "USEPA Contract Laboratory Program Statement of Work for Organics Analysis," U.S. EPA, Office of Emergency and Remedial Response, February 1988.
13. "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis," U.S. EPA, Office of Emergency and Remedial Response, July 1988.
14. "Quality in the Constructed Project: A Guideline for Owners, Designers, and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment," American Society of Civil Engineers, May 1988.
15. "Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.
16. "CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (Draft), OSWER Directive No. 9234.1-01 and -02.
17. "Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (Draft), OSWER Directive No. 9283.1-2.
18. "Guide for Conducting Treatability Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, Pre-publication Version.
19. "Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.
20. "Standard Operating Safety Guides," U.S. EPA, Office of Emergency and Remedial Response, November 1984.
21. "Standards for General Industry," 29 CFR Part 1910, Occupational Health and Safety Administration.
22. "Standards for the Construction Industry," 29 CFR 1926, Occupational Health and Safety Administration.
23. "NIOSH Manual of Analytical Methods," 2d edition. Volumes I - VII, or the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.

24. "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/ Environmental Protection Agency, October 1985.
25. "TLVs - Threshold Limit Values and Biological Exposure Indices for 1987 - 88," American Conference of Governmental Industrial Hygienists.
26. "American National Standards Practices for Respiratory Protection," American National Standards Institute Z88.2-1980, March 11, 1981.
27. "Quality in the Constructed Project - Volume 1," American Society of Civil Engineers, 1990.

SUMMARY OF THE MAJOR DELIVERABLES FOR THE
REMEDIAL DESIGN AND REMEDIAL ACTION AT
THE SANFORD GASIFICATION PLANT SITE
OPERABLE UNIT ONE AND TWO

<u>DELIVERABLE</u>	<u>EPA RESPONSE</u>
<u>TASK I</u> <u>PROJECT PLANNING</u>	
No deliverables planned as a part of Task I.	
<u>TASK II</u> <u>REMEDIAL DESIGN</u>	
RD Work Plan (7*)	Review and Approve
Design Sampling and Analysis Plan (7) (if needed)	Review and Approve
Health and Safety Plan (if needed) (5)	Review
Preliminary Design	Review and Comment
Results of Data Acquisition Activities (7)	Review and Comment
Design Criteria Report (7)	Review and Comment
Draft Plans and Specifications (7)	Review and Comment
Plan for Satisfying Permitting Requirements (7)	Review and Approve
Preliminary Design Analysis (5)	Review and Comment
Draft Construction Schedule (5)	Review and Comment
Prefinal/Final Design Complete Design Analyses (7)	Review and Approve
Final Construction Schedule (5)	Review and Approve
Draft Construction Quality Assurance Plan (5)	Review and Comment

Prefinal/Final Design Complete Design Analyses (7)	Review and Comment
Final Plans and Specification (7)	Review and Approve
Final Construction Schedule (7)	Review and Approve
Final Construction Quality Assurance Plan (5)	Review and Approve
Construction Cost Estimate (5)	Review and Comment

TASK III REMEDIAL ACTION

RA Work Plan (7)	Review and Approve
Construction Management Plan (5)	Review and Approve
Construction Quality Control Plan (5)	Review and Approve
Construction Health and Safety Plan (5)	Review
Contingency Plan (5)	Review and Approve
Prefinal Construction Inspection Report (5)	Review and Approve
Final Construction Report (7)	Review and Approve
Remedial Action Report (7)	Review and Approve

TASK IV OPERATION AND MAINTENANCE

Operation and Maintenance Plan	Review and Approve
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TASK V PERFORMANCE MONITORING

Groundwater Monitoring Plan (7)	Review and Approve
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* NOTE: The number in parenthesis indicates the number of copies to be submitted by Respondents. One copy shall be unbound, the remainder shall be bound.